

hybridize, under conditions of stringency, with a probe corresponding to a nucleotide fragment from *H. pylori* which has been amplified using two oligonucleotide sequences having the following sequences:

OLFbA-1: ATGCCTCGAGGTCGAAAAGCAAGATG (SEQ ID NO: 1)

OLFbA-2: GAAATCTTCATACTGGCAGCTCCAGTC (SEQ ID NO: 2)

or able to hybridize, under conditions of high stringency, with these oligonucleotides.

32. Composition for the *in vitro* detection of an infection due to *H. pylori* in a sample of biological fluid from a patient, comprising a *H. Pylori* bacterial strain, or a bacterial extract of the said bacterial strain, having an aflagellate phenotype resulting from a mutation, by substitution, addition and/or a deletion of bases or of a nucleotide fragment of a nucleotide sequence of a *flbA* gene regulating biosynthesis of a flagellar protein of such as obtained by steps comprising:

a) screening a genomic library containing a chromosomal DNA of the bacterial strain or the bacterial extract with a probe corresponding to a nucleotide fragment from *H. pylori* which has been amplified using two nucleotides having the following sequences:

OLFbA-1: ATGCCTCGAGGTCGAAAAGCAAGATG (SEQ ID NO: 1)

OLFbA-2: GAAATCTTCATACTGGCAGCTCCAGTC (SEQ ID NO: 2)

or able to hybridize under conditions of high stringency, with these oligonucleotides;

b) recovering the DNA sequences which hybridize with the said probe;

c) subcloning the DNA sequences which have been obtained in an appropriate vector of the plasmid type and selecting those modified vectors which hybridize, under

conditions of high stringency, with the probe corresponding to the DNA fragment from *H. pylori* which has been amplified using oligonucleotides OLF1bA-1 and OLF1bA-2; and

d) sequencing the DNA fragments contained in the plasmid vectors which hybridize with the abovementioned probe and determining an open reading frame contained in these fragments.

33. The composition according to claims 31 or 32 wherein the *H. pylori* bacterial strain, or the bacterial extract of the said bacterial strain, is selected from the group consisting of :

B  
CMT

- a) a bacterial strain lacking the hook protein of *H. pylori*;
- b) a recombinant bacterial strain obtained from the strain N6, (NCIMB 40512);
- c) a recombinant bacterial strain obtained from the strain N6 (NCIMB 40512) and lacking the hook protein of *H. pylori*;
- d) a recombinant bacterial strain obtained from the strain N6flbA- (NCIMB 40747); and
- e) a recombinant bacterial strain obtained from the strain N6flbA- (NCIMB 40747) and lacking the hook protein of *H. pylori*.

34. The composition according to claims 31 or 32, wherein the bacterial extract is obtained after extracting with n-octyl glucoside.

35. The composition according to claims 31 or 32, wherein the bacterial extract is obtained after extracting with PBS or with glycine.

36. The composition according to claims 31 or 32, wherein the nucleotide sequence comprises the sequence depicted in Figure 2. (SEQ ID NO:6)

*Sulz*  
*D2*  
*b1*  
*cont*

37. Method for the *in vitro* detection of an infection due to *H. pylori* in a sample of biological fluid from a patient, comprising the steps of:

a) bringing the sample into contact with a bacterial strain, or a bacterial extract from the said bacterial strain, wherein the bacterial strain or the bacterial extract has an aflagellate phenotype resulting from a mutation, by substitution, addition and/or a deletion of bases or of a nucleotide fragment of a nucleotide sequence of a *flbA* gene regulating biosynthesis of a flagellar protein of *H. pylori*, which is able to hybridize, under conditions of stringency, with a probe corresponding to a nucleotide fragment from *H. pylori* which has been amplified using two oligonucleotide sequences having the following sequences:

OLFbA-1: ATGCCTCGAGGTCGAAAAGCAAGATG (SEQ ID NO:11)

OLFbA-2: GAAATCTTCATACTGGCAGCTCCAGTC, (SEQ ID NO:2)

or able to hybridize, under conditions of high stringency, with these nucleotides; and

b) detecting an immunological reaction between the bacterial strain or the bacterial extract and antibodies which are directed against *H. pylori* and which are present in the sample.

D  
b  
c  
c

38. Method for the *in vitro* detection of an infection due to *H. pylori* in a sample of biological fluid from a patient, comprising the steps of:

a) bringing the sample under test into contact with a bacterial strain, or a bacterial extract of the said bacterial strain, wherein the bacterial strain or the bacterial extract has an aflagellate phenotype resulting from a mutation, by substitution, addition and/or a deletion of bases or of a nucleotide fragment of a nucleotide sequence of a *flbA* gene regulating biosynthesis of a flagellar protein of *H. pylori*, such as obtainable <sup>A</sup> as obtained by steps comprising:

(i) screening a genomic library containing a chromosomal DNA of the bacterial strain or the bacterial extract with a probe corresponding to a nucleotide fragment from *H. pylori* which has been amplified using two nucleotides having the following sequences:

OLFbA-1: ATGCCTCGAGGTCGAAAAGCAAGATG (SEQ ID NO:1)

OLFbA-2: GAAATCTTCATACTGGCAGCTCCAGTC (SEQ ID NO:2)

or able to hybridize under conditions of high stringency, with these oligonucleotides;

(ii) recovering the DNA sequences which hybridize with the said probe;  
(iii) subcloning the DNA sequences which have been obtained in an appropriate vector of the plasmid type and selecting those modified vectors which hybridize, under conditions of high stringency, with the probe corresponding to the DNA fragment from *H. pylori* which has been amplified using oligonucleotides OLFbA-1 and OLFbA-2;

(iv) sequencing the DNA fragments contained in the plasmid vectors which hybridize with the abovementioned probe and determining an open reading frame contained in these fragments; and

b) detecting an immunological reaction between the bacterial strain or the bacterial extract and antibodies which are directed against *H. pylori* and which are present in the sample.

39. The method according to claims 37 or 38 wherein the *H. pylori* bacterial strain, or the bacterial extract of the said bacterial strain, is selected from the group consisting of:

b1  
cont

- a) a bacterial strain lacking the hook protein of *H. pylori*;
- b) a recombinant bacterial strain obtained from the strain N6 (NCIMB 40512);
- c) a recombinant bacterial strain obtained from the strain N6 (NCIMB 40512) and lacking the hook protein of *H. pylori*;
- d) a recombinant bacterial strain obtained from the strain N6f1bA- (NCIMB 40747);
- e) a recombinant bacterial strain obtained from the strain N6f1bA- (NCIMB 40747) and lacking the hook protein of *H. pylori*.

40. The method according to claims 37 or 38, wherein the bacterial extract is obtained after extracting with n-octyl glucoside.

41. The method according to claims 37 or 38, wherein the bacterial extract is obtained after extracting with PBS or with glycine.